Marketing Hay by Nutritive Value and Weight

Hay-only winter feeding programs are expensive and add significantly to the overall cost of cow-calf production. Producers should consider alternative winter feeding strategies that reduce both dependence on hay and input costs. However, there should be a store of hay on hand for the inevitable drought or ice/snow cover days. In most cases hay should be purchased from reputable sources rather than produced. Livestock production systems generally have too much forage in spring and not enough for the rest of the year. Rather than baling their own hay, producers should either arrange for custom hay producers to harvest the spring surplus or sell calves when surplus forage is used up. This is especially true for producers with fewer than 100 head of cattle, who probably have little business owning hay harvesting equipment. Therefore, it may be necessary to reevaluate the primary method in which hay is marketed in Texas and the southern U.S.

The Problem

Although much hay is put up and sold as small, square bales, most cow-calf producers feed hay in large, round bales. Round bales are popular because less labor is required to store and feed the hay. Most hay sold for...
cow-calf production systems is sold on a per-round-bale basis. There are two major problems associated with this procedure.

First, the nutritive value of the bale is unknown. Hay purchasers need to know whether the nutritive value of the forage is high enough to meet the requirements of their animals. If the nutrient level is less than that required by the kind and class of animals being fed, supplementation is required during the hay-feeding period. This can add dramatically to the cost of the feeding program. Hay is often advertised as “well” or “heavily” fertilized, but these terms are unclear. The actual level of crude protein, digestible energy and other nutrients in the forage should be determined by a forage analysis. This information enables the producer to make sound feeding, and if necessary, supplementation decisions. Without a forage analysis, it is difficult to determine which of two bales of similar weight has more value. Higher-priced hay may be a better bargain if no supplement is required. Ask yourself the question: Why should a bale with only 6 percent crude protein sell for the same price as a bale that contains 16 percent crude protein? In most cases it should not, yet these differences are not obvious from a visual appraisal.

Another problem relates to the amount of dry matter being sold/purchased. Bale size can and does vary tremendously because of differences in a) baling equipment, b) the experience/skill of the equipment operator, c) forage species, d) moisture content of the forage when baled, e) type of wrap used, and f) storage conditions (inside versus outside). A complete economic analysis indicates that bermudagrass hay costs $65 to $70 per ton to produce if all inputs (labor, equipment, fuel, repairs, taxes, depreciation, fertilizer, herbicide, etc.) are accounted for. Recent work by Falconer indicated that production costs alone, without the added expenses of hauling hay out of and back into a field, were $58 per ton, or $29 per 1,000-pound round bale. Therefore, a round bale that sells for $25 can either be a wise purchase if the bale weighs 1,200 pounds or a poor investment if the bale weighs only 700 pounds. When hay is sold by the bale rather than by weight, someone, either the seller or the purchaser, is getting shortchanged. Producers may also be feeding less nutritious hay than is required for good animal performance if nutrient content is low or bales weigh less than estimated.

The Solution

The obvious answer to the problem of marketing round bales of unknown weight and nutritive value is to analyze and weigh the hay. Nutritive value of the forage can be determined by sending forage samples of each lot of hay to a forage testing laboratory. The actual weight of a load of hay can be determined by a trip across a set of local scales. Scales likely could be located at the production site. This weight, adjusted for moisture content as determined by a moisture probe, results in the actual dry weight of the hay. For the purposes of hay marketing, a lot of hay is defined as: All the forage harvested and baled from one field at one harvest date and stored under similar conditions. Therefore, random forage samples should be obtained that represent all harvest dates for all fields. Samples should be obtained using a hay core inserted into the bale from the curved, not flat, side. Ten percent of the bales should be sampled to obtain one composite sample for analysis. This sample should be representative of the nutritive value for that lot of hay. Sample cost is about $5 to $10 per sample (varies per lab) for crude protein analysis, a small price to pay to ensure the potential purchaser of the nutritional value of that particular lot of hay.

Once the nutritive value and weight of the hay are known, prices per ton can be established according to nutritive value, based on another accepted standard feed stuff such as cottonseed meal. Finally, classifying hay as to nutritive value would help purchasers know the kind and class of livestock for which a particular lot of hay is suited. A classification system also allows producers of better hay to be rewarded accordingly. A suggested hay classification system is illustrated in Table 1. A feed stuff other than cottonseed meal may be used to estimate the value of the hay. Prices will vary

<table>
<thead>
<tr>
<th>Hay classification</th>
<th>Crude protein content</th>
<th>Value of cottonseed meal*</th>
<th>Estimated value of hay crop*</th>
<th>Class of livestock**</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&gt;14%</td>
<td>$200/ton</td>
<td>$84.00/ton</td>
<td>1 – 4</td>
</tr>
<tr>
<td>B</td>
<td>&gt;12 – 14%</td>
<td>$200/ton</td>
<td>$73.00/ton</td>
<td>2 – 4</td>
</tr>
<tr>
<td>C</td>
<td>&gt;10 – 12%</td>
<td>$200/ton</td>
<td>$62.00/ton</td>
<td>3 – 4</td>
</tr>
<tr>
<td>D</td>
<td>&gt;8 – 10%</td>
<td>$200/ton</td>
<td>$50.00/ton</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>&lt;7%</td>
<td>$200/ton</td>
<td>$34.00/ton</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*Value of cottonseed meal in East Texas, Spring 2000.

**Classes of livestock: 1=growing beef animals, first-calf heifers; 2=high-milk beef cows, horses; 3=late-gestating cows, lactating cows; 4=dry, early- to mid-gestating cows; N/A=not appropriate for any class of livestock without an appropriate supplement.
from year to year, but the weight and nutritive value of hay crops must be determined to establish a fair hay market. If you purchase hay, insist on seeing evidence that the hay has been weighed and analyzed. If you produce hay, consider giving the customer a forage analysis and demonstrate your efforts to put up a good product. In the end, both parties will benefit from hay that is marketed by the ton and priced according to nutritive value.

For more information, contact your county Extension agent or visit our Web site at http://www.soil-testing.tamu.edu.

Adapted from SCS-2001-09, “Marketing Hay By Nutritive Value and Weight,” Dr. Larry A. Redmon, Professor and Extension Forage Specialist, Texas Cooperative Extension, The Texas A&M University System, College Station, TX, (979) 845-4826, l-redmon@tamu.edu.

**Effects of Modified-Live Bovine Viral Diarrhea Virus Vaccines Containing Either Type 1 or Types 1 and 2 BVDV on Heifers and Their Offspring after Challenge with Noncytopathic Type 2 BVDV During Gestation**

A recent study compared the efficacy of modified-live virus (MLV) vaccines containing either type 1 bovine viral diarrhea virus (BVDV) or types 1 and 2 BVDV in protecting heifers and their offspring against infection from heterologous noncytopathic type 2 BVDV challenge during gestation.

Heifers were inoculated with a placebo vaccine, with one or two doses of an MLV vaccine containing type 1 BVDV, or with one dose of an MLV vaccine containing both types 1 and 2 BVDV. Heifers were then bred naturally and challenge exposed with type 2 BVDV field isolate between 62 and 104 days of gestation. Pregnancies were monitored; after parturition, virus isolation and immunohistochemical analyses of ear-notch specimens were used to determine whether calves were persistently infected. Blood samples were collected from heifers at intervals for serologic evaluation and virus isolation.

**Results.** Persistent infection was detected in 18 of 19 calves from heifers in the control placebo group and in 6 of 18 calves and 7 of 19 calves from heifers that received one or two doses of the type 1 BVDV vaccine, respectively. None of the 18 calves from heifers that received the MLV vaccine containing types 1 and 2 BVDV were persistently infected.

**Conclusions and Clinical Application.** These data suggest that the incidence of persistent BVDV infection among offspring from dams inoculated with one dose of MLV vaccine containing types 1 and 2 BVDV was decreased, compared with one or two doses of the MLV vaccine containing only type 1 BVDV.

**Dairy and Beef Cattle Practice**

**Producers Advised to Use Caution with Drought-Stressed Feed**

Danger may be lurking as farmers try to market drought-stressed crops and livestock producers hunt for forage, said two Texas Cooperative Extension specialists. Dr. Ellen Jordan, Extension dairy specialist in Dallas, said many growers are attempting to salvage drought-stressed corn and sorghum crops. One possible market is dairy rations. But some drought-stressed crops may harbor aflatoxins, prussic acid or high levels of nitrates. Aflatoxins are a poisonous by-product of the mold aspergillus. Metabolites of aflatoxin are potent cancer-causing agents; thus, government regulations specify milk must contain less than 0.5 parts per billion (ppb). To keep milk from becoming tainted, producers must adhere to U.S. Food and Drug Administration (FDA) guidelines to keep aflatoxin in dairy feed at less than 20 ppb.

Dr. Ted McCollum, Extension beef cattle specialist in Amarillo, worries some of the stressed crops also might be used to feed beef cattle. Aflatoxin in feeds can hurt the performance and health of beef cattle. For dry cows and yearlings, total feed should contain less than 300 ppb aflatoxin. For lactating cows and weaned calves, total feed should contain less than 100 ppb. “Thus, caution is required when considering the use of corn grown under stressful conditions,” Jordan said. Extension plant pathologists recently collected samples from corn fields north of Dallas. These fields, being baled for hay with the stalks and ears included, tested positive for aflatoxin. Several ears from two samples had aflatoxin rates of 590 ppb and 1,700 ppb. The pathologists analyzed kernels from the plants and found aflatoxin rates of 2,200 and 1,400 ppb. Because the kernels were one-third of the total plant weight, using this whole-plant hay for dairy or beef cattle would be difficult if not impossible, Jordan and McCollum said.

Another problem in drought-stressed forages is the high levels of nitrate, the specialists said. Excessive nitrate consumption can be fatal to cattle. Nitrate concentrations higher than 1 percent in the dry matter are considered toxic. However, lower concentrations also can cause health and reproductive problems and impede growth. Nitrate concentrations of less than 0.3 percent are considered safe for pregnant cattle and concentrations of 0.3 percent to 0.5 percent are safe for other cattle, McCollum said.

At levels higher than 0.5 percent, the risk of reproductive failure, health
problems and reduced performance increases. Whenever nitrates are more than 0.44 percent of the forage on a dry-matter basis, feeding strategies are required, Jordan said. For example, when nitrates are between 0.44 percent and 0.66 percent of the dry matter in forages, the forage should be limited to half the dry matter in the ration of pregnant cattle.

The third concern with drought-stressed crops is prussic acid, which accumulates in stressed sorghum, sudangrass, johnsongrass and sorghum-sudangrass hybrids. High levels of nitrogen fertilization can cause prussic acid to accumulate, Jordan said. Re-growth after a rain is often associated with prussic acid poisoning. As forage cures after cutting, however, prussic acid levels will dissipate, McCollum said, so proper harvesting and baling practices can alleviate some potential problems. “Test forages to determine the level of prussic acid,” Jordan advised. Levels of less than 500 parts per million (ppm) on a dry matter basis are usually considered safe, while levels greater than 1,000 ppm are considered hazardous and can be fatal to livestock, she said.

Jordan said purchasing feed from reputable companies that properly monitor their crops is important, since statewide drought stress could boost the potential for aflatoxin, nitrates and prussic acid in most crops. “If you suspect your forages may be high in nitrates or prussic acid, consider ensiling the forage,” Jordan said. “The ensiling process decreases prussic acid and nitrate concentration. The result may make the forage safe to feed, but retest to determine if dilution is still needed.”

Don’t buy poor quality feed or feed ingredients, she advised, because “a good deal on feed can be very expensive if it contains aflatoxin, nitrates or prussic acid.” For additional information visit Extension’s dairy Web site at: http://texasdairymatters.org/

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**SWINE PRACTICE**

**Porcine Circovirus-Associated Disease (PCVAD) Is the New Name for Postweaning Multi-Systemic Wasting Syndrome (PMWS)**

Veterinary members of the American Association of Swine Veterinarians and professionals associated with the U.S. pork industry have endorsed the recent name change for postweaning multi-systemic wasting syndrome (PWMS). The new name, porcine circovirus associated disease (PCVAD), more correctly describes this emerging swine disease. Eliminating the word “wasting” prevents any possible confusion with chronic wasting disease of deer and elk, which is caused by abnormal prion protein accumulation in the brain. No prion-associated disease has ever been identified in swine, as it has in deer and elk (chronic wasting disease), cattle (BSE) and sheep (scrapie). The words “circovirus-associated” in PCVAD better define this problem because porcine circovirus type-2 infection that causes disease almost always co-occurs with other agents such as porcine reproductive respiratory syndrome (PRRS) virus, Mycoplasma hyopneumoniae, Salmonella spp., or other agents. Dr. Pat Halbur, an Iowa State University veterinary researcher, reported that in about 480 cases of PCVAD diagnosed at the Iowa State Veterinary Diagnostic Laboratory, only nine had circovirus type-2 infection alone.

The clinical presentation of PCVAD now has a new variation. The original version (that still occurs) affects weaned pigs 6 to 10 weeks old. Severe weight loss, jaundice, diarrhea and dyspnea are the main clinical signs. Multiple sites such as the liver, kidneys, lungs, heart, pancreas, intestinal tract and lymph nodes may be affected. The immune system is commonly depressed because of lymph node involvement. Porcine circovirus type-2 is commonly found in association with lesions, but as previously discussed, agents such as PRRS virus and M. hyopneumoniae are also found. The main difference with the “new version” of PCVAD is that it affects animals weighing 90 to 150 pounds (about 10 to 15 weeks old) or starts after pigs go into a finishing facility. Once a group of pigs is affected, it seems to take 2 to 4 weeks for the major losses to occur. In severe outbreaks, morbidity and mortality in groups of pigs can be as high as 50 and 35 percent, respectively. However, overall herd mortality rates usually jump initially to 12 to 15 percent (from a typical postweaning average level of 3 percent) and then fall back to 8 percent after various intensive interventions. Another disease that may co-occur with 1 to 10 percent of PCVAD cases is porcine dermatitis and nephropathy syndrome (PDNS), which is seen as diffuse, spotty hyperemia; discoloration; and hemorrhages that may include almost the entire skin surface. Up to 80 percent of these PDNS-affected pigs die. It is not known how or if PDNS is related to PCVAD.

Some good news is that Ft. Dodge has recently received full licensure for an inactivated swine circovirus vaccine called Suvaxyn PCV2 One Dose; it went on the market the last week of June, 2006.

From National Hog Farmer, July 15, 2006, pp. 22-24; Pork, July 2006, pp. 14-16; Ft. Dodge Animal Health (Joe Barban) 800-477-1365; www.stopcircovirus.com; and Bruce Lawhorn, DVM, MS, Visiting Professor, Swine Practice, Food Animal Section, Department of Large Animal Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, The Texas A&M University System, College Station, TX, 77843-4475.
FDA Approves Use of Paylean® in Heavier Hogs

The FDA has approved a label change for Paylean®, a Type A medicated feed additive for swine. (Paylean® is a trademark for Elanco’s brand of ractopamine.) The new approval allows Paylean® to be fed to pigs weighing at least 150 pounds during their final 45 to 90 pounds of gain, regardless of their market weight.

Prior to this change, the label allowed Paylean® to be used only in pigs weighing less than 240 pounds. The new label (available at www.elanco.us or 800-428-4441) also stipulates that Paylean® be added at 4.5 grams to 9 grams per ton to feed in a complete ration containing at least 16 percent crude protein. The label also notes that recent clinical registration data suggests no statistical difference between the effects of the 4.5- and 9-gram levels. Also, the 18 grams per ton feeding level has been removed from the label.

This change to the Paylean® label offers U.S. producers increased flexibility on market weights and allows them to better match their packer preferred weights. It also reaffirms the efficiency of Paylean® at the 4.5- to 9-gram per ton level when fed to animals of any market weight. The new label has a revised caution statement to reflect recent safety studies. However, the new approval underscores Paylean®’s overall safety profile. As with its initial approval in 1999, Paylean® still has a zero withdrawal time prior to slaughter.

AQUACULTURE PRACTICE

Aquatic Veterinarian and Diagnostic Laboratory Databases Now Online

Spearheaded by the AVMA, a new resource to help veterinarians, potential clients, and other individuals locate aquatic veterinarians and diagnostic laboratories was recently made public after more than a year in development. Information on more than 2,000 aquatic veterinarians and 100 diagnostic laboratories can be accessed online at no cost at www.AquaVets.com. Previously, this information was known only through word-of-mouth, said Dr. David Scarfe, assistant director of the AVMA Scientific Activities Division. “Two recent U.S. national animal disease emergency declarations, one affecting food-producing salmon, the other for ornamental koi and other carp, have clearly heightened the awareness of these veterinary needs,” Dr Scarfe said.

The databases were initiated with funds from the Department of Agriculture as a resource for reducing the disease risks to commercial aquaculture. The databases incorporate all disciplines of veterinary medicine that involve aquatic species, from crustacean and molluscan invertebrates to finfish, reptiles, amphibians and marine mammals. “The AVMA recognized that aquaculture is the fastest growing segment of agriculture,” said AVMA President Henry E. Childers. “More than 47 percent of all animal protein consumed is seafood, a third of which is farmed, yet no source of information on how to locate aquatic veterinarians or diagnostic labs existed. This has left aquaculture producers, animal owners, government agencies and veterinarians at a disadvantage.” Users can search the new online databases using several criteria, such as person or laboratory name, location, species type served, or disease and diagnostic test type. With password protected access, veterinarians and laboratories can update their profile at any time, and new veterinarians and laboratories can easily register. As part of registration, veterinarians and laboratories can choose whether they want their information made public and whether they want to subscribe to Aqua VetMed, an e-mail news service moderated by the AVMA.

During the test phase of the AquaVets.com project, Dr. Scarfe said, “the developers received a large number of requests from companion animal practitioners to participate. We always assumed that there were a large number of companion animal veterinarians servicing aquatic animal clients, but the response was quite surprising.” Consequently, the developers will examine the possibility of adding modules to AquaVets.com for online continuing education, disease surveillance, diagnostic laboratory submissions and certificates of veterinary inspections. The AVMA, AUMS Ltd./Aquaculture Underwriting & Management Services, and GlobalVetLink LLC developed the databases as part of the National Risk Management Feasibility Program for Aquaculture. Partial support for the online databases was provided by the Department of Agriculture Risk Management Agency’s Federal Crop Insurance Corporation through Mississippi State University.

A brochure on the resources available at www.AquaVets.com may be obtained by calling the AVMA at 800-248-2862, ext 6636.


Evaluation of the Prevalence and Onset of Lung Lesions and Their Impact on Growth of Lambs

An observational study of 259 crossbred whether lambs from a single flock in the upper Midwest was conducted to determine the prevalence and temporal onset of lung lesions and the impact of the lung lesions on the growth of lambs.

Lambs born in the spring and fall were slaughtered at finished weight or at a predetermined time. The lungs of each lamb were examined and classified as normal, moderate lesions (consolidation more than 5 percent but less than or equal to 50 percent of any lobe), or severe lesions (consolidation of more than 50 percent of any lobe). Data were examined to detect the effects of the prevalence or severity of lung lesions on growth and carcass traits.

Results. Of the 89 spring-born lambs, 57 (64 percent) had lung lesions characterized by consolidation of lung tissue. A small number of lambs had pulmonary adhesions or active abscesses. In contrast, only 31 (29 percent) of the 108 fall-born lambs had lung lesions. Severe lung lesions were associated with significant reduction in average daily gain. Severe lung lesions were not detected until the middle of the finishing period and were associated with culture of Mannheimia haemolytica or Pasteurella multocida.

Conclusions and Clinical Application. These data show that severe lung lesions can be quite prevalent in lambs and that they greatly reduce the animals’ growth.


Veterinary Quarterly
2. Practice good sanitation! Wash your hands after handling live-
stock (even if you wear gloves.) Disinfect equipment used on the
animals or carcasses. Keep pets and children away from carcass-
es or bones of dead animals. Move healthy animals away from a
pasture where animals have died from the disease.
3. Properly dispose of animal carcasses by burning to prevent exposure to other animals, such as predators or dogs.
4. Vaccinate livestock if cases occur in the surrounding area. Anthrax vaccine is an attenuated “live” vaccine, so it must not be admin-
istered with antibiotics. Vaccinated animals must be withheld from slaughter for 2 months.
5. Restrict the movement of live-
stock onto or from an affected premise until animals can develop immunity through vaccination (about 10 days).

Adapted from a July 25, 2006, news release, “Sum-
mertime is Anthrax Time in Texas; Vaccinate Livestock in Val Verde, Crockett and Surrounding Counties,” Texas Animal Health Commission, Box I2966, Austin, Texas 78711, 800-550-8242, fax 512-
719-0719, Bill Hillman, DVM, Executive Director. For information contact Carla Everett, information officer, at 800-550-8242, ext. 710, or ceverett@tahc.
tx.us. Information is also available at http://
www.tahc.state.tx.us.

Anthrax Publication and
Videotape Available

The Texas Cooperative Extension
publication L-5402, “Anthrax” (2001, 4 pages) is available from the TCE
Bookstore (http://tcebookstore.org) to download or print or purchase
($1.00). This publication describes the
symptoms in livestock, deer and peo-
ple and explains how the diagnosis is
made. There is important information
about prevention, control and what to
do if a case of anthrax is suspected.

The Texas Cooperative Extension
videotape SP-128, “Anthrax: Bacillus
anthracis” (2002, 8 minutes) is also available from http://tcebookstore.org
to purchase ($9.95). Seasonal out-
breaks of anthrax from June through
October are common in several south-
west Texas counties each year. This
videotape answers basic questions
about anthrax and has information to
help ranchers and hunters understand
precautionary measures they should
take to prevent exposure to anthrax.

From Bruce Lawhorn, DVM, MS, Visiting Profes-
sor, Swine Practice, Food Animal Section, Depart-
ment of Large Animal Clinical Sciences, College of
Veterinary Medicine and Biomedical Sciences, The
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77843-4475

EQUINE PRACTICE
Equine Viral Arteritis (EVA)
Outbreak Reported in New Mexico

On June 28, 2006, the New Mexico
Livestock Board released information
describing an outbreak of Equine Viral
Arteritis (EVA). Previously, on Mon-
day, June 26, 2006, the Office Inter-
national des Epizooties (O.I.E.) Re-
ference Laboratory for EVA at the
University of Kentucky College of
Agriculture’s Maxwell H. Gluck
Equine Research Center had reported
this confirmed outbreak of EVA infec-
tion. The outbreak caused fetal loss-
es among mares on a quarter horse
breeding farm in New Mexico. Confi-
rmation was based on the widespread
prevalence of high antibody levels to
the virus in both mares and stallions,
plus virus isolation from the semen of
two stallions. The New Mexico Live-
stock Board in Albuquerque, N.M., is
investigating the potential for spread
of the infection to other premises. The
EVA Reference Laboratory is interest-
ed in receiving samples from suspec-
ted clinical cases of EVA or from ani-
imals very recently exposed to semen
from either of the virus-shedding stal-
lios. Veterinarians are requested to
contact the Gluck Center at (859) 257-
4757 before submitting samples.

For more information about this
outbreak or about EVA, the following
resources are available:
- the New Mexico Livestock
  Board Web site,
  www.newmexicolivestockboard.
  com, under “critical events”
  usda.gov/vs.nahps/evine/eva/
  www.aphis.usda.gov/vs/nahps
  equine/eva/

Detailed information on the
history, transmission, symptoms,
clinical signs, treatment, preven-
tion and control of EVA is avail-
able at www.aphis.usda.gov/
lpa/pubs/fsheet_faq_notice/fs_
ahequineva.html

Veterinary Continuing Education Seminars, 2006–2007
College of Veterinary Medicine and Biomedical Sciences
Texas A&M University

*October 20–22, 2006 .......... Annual Equine Conference: Equine Lameness and Orthopedics
*November 17–19, 2006 ............................................ Annual Equine Reproduction Symposium
*December 1–3, 2006 ..............................................Clinical Neurology Conference
*June 1–3, 2007 ............................................................ Annual Food Animal Conference
  (Dr. Steven Wikse)

*Confirmed
Calendar is subject to revision.

For more information on these programs of self-study and personalized continuing
education, please call (979) 845-9102, fax (979) 862-2832, or e-mail edyer@cvm.tamu.edu.

From the Office of Veterinary Continuing Education, College of Veterinary Medicine and
Biomedical Sciences, College Station, Texas.
CANINE PRACTICE

2006 Guidelines for Canine Vaccine Available from the American Animal Hospital Association

The original 2003 American Hospital Association (AAHA) canine vaccine guidelines document has been updated. New scientific information on vaccine duration of immunity and shelter medicine are two areas that have prompted these revisions. The guidelines help veterinarians make vaccination recommendations for individual pets or populations of dogs (i.e., shelters, kennels).

The guidelines are not intended to be an AAHA standard of care. Vaccines are classified as core, noncore or not recommended. Sections on serologic testing, adverse reactions, the biologic licensing process and medical/legal aspects of vaccinology have been revised. Of particular interest are new sections on the science of vaccine development and vaccines granted conditional licenses, such as rattlesnake and periodontal disease vaccines. The new 28-page Guidelines can be accessed at the AAHA Web site www.aahanet.org.

From the companion animal news section, “AAHA Updates Canine Vaccine Guidelines,” Journal of the American Veterinary Medical Association, Volume 229, Number 8, April 15, 2006, 1172.